Children's attitudes towards animal cruelty

Children's Attitudes towards Animal Cruelty: Exploration of Predictors and Socio-demographic Variations

Abstract

Assessing the risk for animal cruelty is imperative, yet understudied and problematic due to the sensitivity of the topic. Early prevention is critical, yet very little research examines cruelty when it first appears in childhood. The aim of this study was to explore children's attitudes towards types of animal cruelty, to investigate potential demographic differences, and to examine potential associations between acceptance of cruelty and cognitive and affective factors that place children 'at-risk' for cruelty perpetration. Questionnaire data was collected from 1,127 children in schools. The results indicate that cruelty attitudes are predicted by some demographic variables such as urban living, being male, younger age and not having pets, but depend on the type of animal cruelty. Acceptance of cruelty predicted low compassion and low reported humane behaviour towards animals. Acceptance of cruelty was predicted by negative attitudes towards animals, lower beliefs in animal minds and low attachment to pets, signifying the importance of targeting such variables in future prevention programmes. This study is an original contribution to research into childhood animal cruelty in the general population, with implications for designing and implementing early prevention programmes that tackle problematic attitudes to cruelty.

Key words: Animal cruelty; Animal abuse; Attitudes; Children; Demographics

Introduction

To make a significant positive impact on child-animal relationships and prevent violence towards animals from an early age, it is first necessary to understand the fundamental mechanisms that underlie children's attitudes towards cruelty behaviour. Animal cruelty can be defined in many ways such as "behaviors that are harmful to animals, from unintentional neglect to intentional killing" (Humane Society of the United States, 1999 as cited in Petersen & Farrington, 2007), and "socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or death of an animal" (Ascione, 1993, p. 228). For the purpose of this paper, we define animal cruelty as inhumane behaviour towards animals, whether intentional or unintentional, that causes physical and/or psychological harm to the animal, thus compromising their welfare. We know from reviews of research into animal cruelty (e.g. Hawkins, Hawkins & Williams, 2017; Gullone, 2014a, 2014b) that there are a range of risk factors for this aberrant behaviour including, but not limited to: a lack of empathy (McPhedran, 2009); particularly low cognitive empathy (Hartman et al., 2016), characteristic of callous-unemotional traits alongside a lack of guilt or remorse, shallow affect and psychopathy (Dadds, Whiting & Hawes, 2006; Walters, 2014); impulsivity (Newberry, 2017a); adverse childhood experiences, particularly child abuse and neglect, sexual abuse and/or domestic abuse (Bright et al., 2018; McDonald et al., 2018); victimisation and bullying (including cyber-bullying); and normative beliefs about aggression (Sanders & Henry, 2018). Animal cruelty has also been associated with compromised mental health, psychopathology and psychiatric disorders (Ascione, 1993; Gleyzer, Felthous & Holzer, 2002), is often observed within a broader pattern of delinquent and antisocial behaviours (Walters & Noon, 2015) and may be a significant warning sign for antisocial behaviour (The International Classification of

Diseases, World Health Organisation, 2004) and/or Conduct Disorder (American Psychological Association, 2013).

There is extensive research demonstrating the link between animal cruelty and other violent crimes, often referred to as 'The Deviation Hypothesis', and evidence of a link between violence towards animals in childhood and subsequent human-directed violence, 'the graduation hypothesis' (see Gullone, 2014a, 2014b). Thus, instilling humane values early on in life has the potential to reduce both animal cruelty and human violence (Alleyne & Parfitt, 2017; Trentham, Hensley & Policastro, 2017). This acknowledgement of the importance of animal cruelty has recently led to the tracking of animal cruelty by the Federal Bureau of Investigation (FBI, 2016) and an increase in the maximum sentence for animal cruelty in the United Kingdom (Scottish Government, 2017-2018).

It is important, however, to recognise that there may be different developmental trajectories for animal cruelty in childhood. Firstly, some children, especially young children, may accidentally hurt an animal through play and lack of supervision (e.g. inappropriate petting or handling of a pet) and/or a lack of education about the species welfare needs (e.g. giving chocolate to a pet dog). This unintentional or accidental cruelty could be prevented through universal animal welfare education programmes aimed to increase children's knowledge about welfare needs, appropriate care and humane treatment (Ascione & Weber, 1996; Hawkins, Muldoon, Williams & Scottish SPCA, 2018; Komorosky & O'Neal, 2015; Tardif-Williams & Bosacki, 2015; Thompson & Gullone, 2003). Intentional animal cruelty, on the other hand, may be symptomatic of serious underlying psychological difficulties which may need to be addressed through more targeted intervention. Intentional animal cruelty is more often observed in older children and adolescents where the cruelty may be just one of many behaviours within a broader pattern of delinquent and antisocial behaviour (Walters & Noon, 2015). Older children and adolescents may likely be cruel to an animal through social pressures

93 such as peer reinforcement or youth gang membership (Ascione, 1999) but this is not always
94 the case. More often than not, children who are intentionally cruel have experienced adverse
95 childhood experiences ('ACE's'), which impact social, cognitive and behavioural
96 development, resulting in negative long-term effects on learning, behaviour and health
97 (children with ACE's are 15 times more likely to commit violence; Scottish Government,
98 2018).

99 Although studies into animal cruelty have increased over the years, a drawback is that
100 the majority of studies have focused on intentional animal cruelty and on clinical or special
101 populations, adult populations, relying heavily on retrospective reports of childhood animal
102 cruelty (e.g., Parfitt & Alleyne, 2016). Studies have focused on the links between cruelty and
103 violence (e.g., Collins et al., 2018; Monsalve, Ferreira & Garcia, 2017), and associations
104 between cruelty and behavioural problems (e.g., Baglivio et al., 2017), and links with adverse
105 childhood experiences (Browne, Hensley & McGuffee, 2017). Most studies have not directly
106 focused on childhood cruelty towards animals (e.g., Levitt, Hoffer & Loper, 2016; Newberry,
107 2017a, 2017b; Sanders & Henry, 2017; Walters, 2017). Moreover, very little research has
108 considered differences between intentional harm and unintentional harm and neglect. Although
109 current studies direct us to the importance of intervening in cruelty behaviour early on before
110 it escalates, current measures assess children or adolescents once the act has already occurred
111 (e.g. Parkes & Signal, 2017), thus limiting the ability to intervene and prevent cruelty before it
112 begins. Given that cruelty begins at a young age and the roots of cruelty first appear in
113 childhood (Lewchanin & Randour, 2008), early prevention of animal cruelty in childhood is
114 crucial. Finding out whether children believe it is acceptable to be cruel towards an animal,
115 may provide useful information about whether a child is at risk of intentional animal cruelty
116 before this behaviour has developed.

Measuring attitudes is a useful alternative to measuring cruelty behaviour directly given that a large body of research supports the link between attitudes and behaviour and between attitudes and intention to behave (see Armitage & Christian, 2003 for a review). Furthermore, multiple acts of animal cruelty behaviour have been associated with low sensitivity to cruelty-related attitudes in adult males (Henry & Sanders, 2007). Recent papers have highlighted that animal cruelty attitudes and animal cruelty behaviour are related in adolescents and young adults (Connor, Currie & Lawrence, 2018; Hawkins, Hawkins, Cáceres & Williams, 2017). It is also often difficult to obtain information on childhood animal cruelty given that the behaviour is often performed alone, is guarded and is not shared with others (Felthous & Kellert, 1998). Asking children about cruelty behaviour is often not acceptable to schools or parents and may be distressing for children. However, teacher and parent reports may be inaccurate and childhood animal cruelty is often underestimated by adults (Felthous & Kellert, 1987; Ascione, Thompson & Black, 1997). Methods which help to overcome these difficulties are vital to advance this area of research. Measuring attitudes also offers a more sensitive alternative to the current measures which ask children distressing questions about cruelty behaviour and may not be appropriate for the general child population. Such measures will also be useful for evaluating animal cruelty prevention programmes in schools.

Existing attitudes towards animal cruelty measures, such as Attitudes toward the Treatment of Animals Scale (ATTAS; Henry, 2006) and a shorter attitude scale developed by the Orlando American Society for The Prevention of Cruelty to Animals (ASPCA; Carter, 2011) are not appropriate for primary school children. For example, the ATTAS is designed for adults, is long, and is not age-appropriate for children. It is also difficult to assess whether these attitudes map onto animal cruelty behaviour (Alleyne et al., 2015). Although the scale developed by ASPCA is much shorter, it was designed for high school students and so the language used is also not appropriate for younger children, for example “Should the penalty

142 for the death of an animal be as severe as for the same crime to a human?". Furthermore, there
143 is no psychometric evidence of the reliability or validity of this scale. The present study
144 therefore utilises a new measure, Children's Attitudes towards Animal Cruelty (CAAC; see
145 also Connor, Currie & Lawrence, 2018) to examine children's acceptance of animal cruelty. A
146 key aim of this study was to focus on how cognitive factors (beliefs about animal minds and
147 attitudes), affective factors (attachment to pets and compassion towards animals) and behaviour
148 (self-reported caring and friendship behaviour) influence children's attitudes towards animal
149 cruelty. Identifying how psychological factors, particularly cognitive factors, can impact upon
150 negative child-animal interactions, in this case cruelty, is the first important step to
151 understanding how we might develop new interventions which manipulate such variables to
152 prevent future perpetration of animal cruelty.

153 It was also important to consider potential socio-demographic factors due to the lack of
154 research into the demographics of those who are cruel to animals in general (Merz-Perez &
155 Heide, 2003), especially in child populations (Burchfield, 2016). Furthermore, previous
156 research has highlighted higher rates of cruelty in males (e.g. Baldry, 2006), geographical
157 differences (animal crimes are more likely to occur in communities with socioeconomic
158 hardship; Burchfield, 2016), higher rates of cruelty in lower-socioeconomic status families
159 (Flynn, 2012) and poverty (Levinthal, 2010), and higher rates of cruelty "for fun" and "to shock
160 others" in urban areas (Hensley & Tallichet, 2005; Hensley, Tallichet & Dutkiewicz, 2011).
161 There also seems to be age trends in animal cruelty with the average onset being 6.5-years,
162 declining between 5-10 years, levelling off around 12-years but peaking in adolescence and
163 young adulthood, particularly between ages 14-15 years (Boat, 2011; Flynn, 2012; Gullone,
164 2012; McEwan et al., 2014; McVie, 2007). There is less data regarding other demographic
165 differences such as pet ownership. Demographic attributes such as gender, age, family
166 affluence, pet ownership, and area of residence will therefore be considered in this article.

167 The aim of this study was to answer the following research questions:

168 1) What are 6 to 12-year-old children's orientations towards animal cruelty? Do these attitudes
169 depend on the type of animal cruelty?

170 2) Are there associations between children's attitudes towards animal cruelty and cognitive and
171 affective factors that may place a child 'at-risk' for future perpetration of animal cruelty (low
172 attachment to pets, low compassion, low beliefs about animal minds, negative attitudes, less
173 caring and friendship behaviour)?

174 3) Are there differences in attitudes towards animal cruelty depending on children's
175 demographics?

176

177 **Materials and Method**

178

179 **Participants**

180 Participants included 1217 (51% boys, 49% girls) primary school children from 24
181 schools across Scotland, UK. Children were mostly aged between 7 and 12-years old (mean
182 (M) = 9.7, standard deviation (SD) = 1, range 6.4–12.2 years) and came from two school year
183 groups: Primary 4, 8–9-year-olds (52.8%, age M = 8.8, SD = 6, range 6.4–9.9 years); and
184 Primary 6, 10–11 year-olds (47.5%, age M = 10.8, SD = 5, range 10–12.2 years). Most children
185 were from urban areas (80%) and from a mid-affluent family (64%). The majority of children
186 had pets (67%) and had a pet of their own (54%). The types of pets recorded were: dogs (35%),
187 cats (22%), small mammals (18%), fish/reptiles/amphibians (21%), birds (2%), and other (4%).

188

Procedure

The ethical guidelines of the British Psychological Society, specifically relating to research with children, were adopted for this research and ethical consent was granted by a University of Edinburgh ethics committee. Permission was sought from each local authority before schools were contacted. School participation was at the headteacher's discretion and parental consent and child assent were obtained prior to data collection.

A self-report questionnaire comprising various measures (described below) relating to the child-animal relationship was administered to the children during class time by school teachers following standardised instructions (approximately 15 minutes to complete). Each child completed the questionnaire individually at their desk. Teachers were instructed that they could help children read questions and answer on procedural queries, but they should not interpret questions or advise children on how to answer. The questionnaire used appropriate terminology for the age-range and a pilot study with three schools (n=128) confirmed its suitability. Questionnaires were either mailed or hand delivered to schools, following completion, questionnaires were sealed in an envelope and either collected in person or sent by mail and then stored securely within the university. All information was treated confidentially and kept secure at all times; child and school data were anonymised during data preparation by adopting identity numbers.

Variables and instruments

Demographic measures included: gender, age, area of residence (town/village/city/countryside/island) and pet ownership (number, type, whether they had a pet of their own). Other measures included:

Children's Attitudes towards Animal Cruelty (CAAC). The Children's Attitudes towards Animal Cruelty measure was adapted from an existing measure for adolescents (Connor, Currie & Lawrence, 2018) and validated with a younger population (Hawkins & Williams, 2016). The scale comprised 11-items where children were asked "How acceptable do you think it is to..?" with 11 behaviours (e.g. "Hurt an animal on purpose"). The items included deliberate animal cruelty such as "Kick an animal on purpose?" accidental animal cruelty such as "Hurt an animal by accident?", and animal neglect such as "Forget to give a pet food or water?". Items were scored on a 5-point Likert scale ("not acceptable at all" to "very acceptable"). Total scores were calculated by collecting responses to the 11 items, ranging from 11 to 55. A high score indicated high acceptance of animal cruelty. The measure comprised three sub-scales: intentional animal cruelty (α = .71), animal neglect (α = .88), and unintentional/accidental cruelty (α = .70). The total scale and the sub-scales are explored in this study. The measure demonstrated good internal consistency (α = .70) and good test-retest and inter-rater reliability (also see Hawkins, Hawkins, Cáceres & Williams, 2017; Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017a).

The *Family Affluence Scale* (FAS II; validated in Currie et al., 2008) measured family wealth. This scale comprised of four questions: 1) does your family own a car, van or truck? 2) Do you have your own bedroom for yourself? 3) During the past 12 months, how many times did you travel away on holiday with your family? 4) How many computers does your family own? For the purpose of analysis, a three-point ordinal scale where low FAS (score=4-7) indicated low affluence, mid FAS (score=8-11) indicated mid-affluence, and high FAS (score=12-13) indicated high affluence. The measure demonstrated low reliability within the current sample (α=.333), but there was no alternative child-friendly measure for family wealth at the time of the study.

The validated *Short Attachment to Pets Scale (SAPS) for Children and Young People* (Marsa-Sambola et al., 2015, 2016) was included to measure attachment to pets/sense of attachment. The scale comprised one question 'Please tell us how you feel about your favourite pet animal' with nine items and was scored on a 5-point Likert scale (1-'strongly agree' to 5-'strongly disagree'). A composite attachment score was calculated (minimum 9, maximum 45). The measure demonstrated high internal consistency ($\alpha = .85$) and good test-retest and inter-rater reliability (also see Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017; Muldoon, Williams & Currie, 2019).

The validated *Children's Beliefs about Animal Minds (Child-BAM)* was included to measure whether children believed animals are sentient (i.e. that they have emotional and cognitive capabilities) (see Hawkins & Williams, 2016). Each scale (e.g. "Do you think the following animals are ….?") related to a specific sentience item (clever/pain/happiness/sadness/fear). These questions were asked in relation to eight animals (dog/cow/human/robin/frog/badger/chimpanzee/goldfish). Each item was scored on a 5-point Likert scale ("strongly agree" to "strongly disagree"). Overall Child-BAM scores were calculated for each participant using the total score from each item (minimum score 40, maximum score 200). The measure demonstrated high internal consistency ($\alpha = .92$) and good test-retest and inter-rater reliability (also see Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017b; Menor-Campos, Hawkins & Williams, 2018).

The *Children's Attitudes towards Animals* (Hawkins, Williams & Scottish SPCA, 2017a) assesses attitudes towards pet animals (e.g., "All pet animals should be cared for by humans"), wild animals (e.g., "Wild animals should live free in the wild"), and farm animals (e.g., "All farm animals should be able to go outdoors"). Each item was scored on a 5-point Likert scale ("strongly agree" to "strongly disagree"). Total scores for attitudes towards animals were calculated (minimum 28, maximum 140). The measure demonstrated good

internal consistency (α = .72) and good test-retest and inter-rater reliability (also see Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017a; Hawkins, Williams & Scottish SPCA, 2017b).

Children's Compassion towards Animals (CCA; Hawkins & Williams, 2016, 2017b) was a 5-item scale asking, "What do you think about animals?" with five statements (e.g. "When I see an animal that is hurt or upset I want to help it"). The measure was scored on a 5-point Likert scale ("strongly agree" to "strongly disagree"). Total scores were calculated (minimum score 5, maximum score 25). The measure demonstrated good internal consistency (α = .70) and good test-retest and inter-rater reliability (also see Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017a; Hawkins, Williams & Scottish SPCA, 2017b).

Children's Reported Humane Behaviour towards Animals (CRHBA; Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017b) was a 12-item scale asking children "How often do you do the following things with or for your pet animal(s) (or would if you had one)?" for each of 12 statements scored on a scale of 1-4 ("often", "sometimes", "never" and "I cannot do this with my animal"). Total scores were calculated (minimum score 12, maximum score 48). This measure comprised two sub-scales: "caring behaviour towards animals", and "friendship behaviour towards animals". It demonstrated high internal consistency (α = .84) and good test-retest and inter-rater reliability (also see Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA, 2017a; Hawkins, Williams & Scottish SPCA, 2017b).

Statistical analysis

Initially data was checked for outliers using box-plots. Normal distribution of dependent variables was checked using the Kolmogorov–Smirnov test, histograms, and

skewness and kurtosis values. This indicated that the data was not normal ($p<.001$). Strongly positively skewed variables were transformed using logarithmic transformation (log 10) and strongly negatively skewed variables were transformed using reflect and logarithmic transformation (log 10). These transformations produced satisfactory skewness and kurtosis values. The assumption of homogeneity of variances was checked using the Levene's test ($p>.05$) and the assumption of sphericity was tested using Mauchly's test of sphericity ($p>.05$). To correct for unequal variances and violation of sphericity, Greenhouse-Geisser correction was used if the estimated epsilon (ε) was less than 0.75 and the Huynh-Feldt correction was used if estimated epsilon (ε) was greater than 0.75 (Maxwell & Delaney, 2003). Studentized residuals were calculated and residuals $\geq \pm 3$ (standard deviations) were classified as outliers and not included in the analysis. Normality checking based on residuals using Q-Q plots indicated that the data did not violate the assumption of normality.

Once basic assumptions were met, simple linear regression analyses were conducted to establish whether there were associations between CAAC scores and other variables underlying child-animal relationships. CAAC scores were examined as an independent variable (IV) and a dependent variable (DV) in separate analyses to give an indication of the direction of these associations. By examining the standardized regression (beta) coefficients, the strength of the relationship between each predictor variable (IV) to the criterion (DV) were assessed and compared, the higher the beta value the stronger the relationship (Freedman, 2009).

Results

What are 6 to 12-year-old children's orientations towards animal cruelty? Do these attitudes depend on the type of animal cruelty?

309

310 **Descriptive Statistics**

311 From inspection of the descriptive statistics (Table 1), the majority of children (88-98%
312 of 1,217) believed that it is 'not acceptable at all' to be intentionally cruel to an animal. Only a
313 small percentage (1-2%) believed that it was 'very acceptable' to be intentionally cruel to an
314 animal. A higher percentage of children believed that it was 'highly acceptable' to neglect an
315 animal (3%) and an even higher percentage believed that it was 'very acceptable' to be cruel
316 to an animal unintentionally (10-13%). These results indicate that children's attitudes towards
317 animal cruelty depend on the type of animal cruelty behaviour
318 (intentional/unintentional/neglect) and that children are less likely to be accepting of intentional
319 animal cruelty.

320

321 [Table 1 here]

322

323 **Are there associations between children's attitudes towards animal cruelty and cognitive**
324 **and affective factors that may place a child 'at-risk' for future perpetration of animal**
325 **cruelty (low attachment to pets, low compassion, low beliefs about animal minds, negative**
326 **attitudes, less caring and friendship behaviour)?**

327

328 Regression analyses were conducted to establish associations between total CAAC and
329 variables relating to child-animal relationships (Table 2, Figure 1). Negative attitudes towards
330 animals and lower Child-BAM scores significantly predicted higher acceptance of animal
331 cruelty. Higher acceptance of animal cruelty significantly predicted lower scores for pet

attachment, compassion, and humane and caring behaviour (Table 2; Figure 1). Higher acceptance of intentional animal cruelty was predicted by lower attachment to pets, low compassion to animals, low reported humane and caring behaviour (sub-measure), negative attitudes towards animals, and lower Child-BAM (Table 2, Figure 2). Lower Child-BAM significantly predicted higher acceptance of unintentional animal cruelty (Table 3, Figure 2). Higher acceptance of animal neglect was predicted by lower attachment to pets, negative attitudes towards animals and lower Child-BAM (Table 3, Figure 2).

[Tables 3 and 4 here]

[Figures 1 and 2 here]

Are there differences in attitudes towards animal cruelty depending on children's demographics?

Independent t-tests revealed no significant difference in total CAAC scores between boys and girls, $t(1162) = 0.05$, $p = .97$, $d = .003$ (see Table 4). However, when looking at the sub-scales, a significant difference between boys and girls was found for animal neglect, ($t(1145) = 2.1$, $p = .04$, $d = .12$), but not for intentional, ($t(1161) = 2.1$, $p = .39$, $d = .02$), or unintentional animal cruelty ($t(1161) = 0.221$, $p = .09$, $d = .01$). Boys were significantly more accepting of animal neglect than girls. There was a significant difference in CAAC scores between older and younger children ($t(1116) = 6.23$, $p = .013$, $d = .40$) (Table 4). Older children were less accepting of animal cruelty than younger children. Older children were also significantly less accepting of intentional animal cruelty than younger children ($t(994) = 2$, $p =$

355 .045, d = .13). There was no significant age difference for unintentional cruelty or animal
356 neglect (p > .05, n.s.).

357 One-way ANOVA did not reveal a significant difference between high, mid and low
358 family affluence and attitudes towards animal cruelty (F(2,1145) = 1.87, p = .15, d = .001)
359 (Table 4), or for sub-scales of intentional animal cruelty (F(2,1145) = 2.8, p = .06, d = .001),
360 unintentional animal cruelty (F(2,1144) = .29, p = .75, d = .001) or animal neglect (F(2,1144)
361 = 2.84, p = .06, d = .001). One-way ANOVA revealed a significant difference in total CAAC
362 scores between geographic locale (Tables 4, 5), which was found for intentional and
363 unintentional animal cruelty, but not animal neglect. Bonferroni post-hoc revealed that children
364 living in cities were more accepting of animal cruelty than children living in villages (p = .003)
365 and towns (p = .01). Children living in cities were also more accepting of unintentional animal
366 cruelty than children living in villages (p = .045). Similar results were found for intentional
367 animal cruelty using a Games-Howell post-hoc test. Children living in cities were more
368 accepting of intentional animal cruelty than children living in villages (p = .001) and towns (p
369 = .011). Children from urban areas were therefore more accepting of animal cruelty.

370 Independent t-tests found that children who had a pet of their own were significantly
371 less accepting of animal cruelty (total CAAC), and animal neglect than children who did not
372 have a pet of their own (Tables 5, 6). No significant difference was found for intentional cruelty
373 or unintentional animal cruelty (Tables 5, 6). One-way ANOVA found no significant difference
374 in total CAAC scores between children with none, one, two, or more than two pets in the
375 household. The same result was found for intentional, unintentional cruelty and animal neglect
376 (Tables 5, 6).

377 Independent t-tests found that children with pet dogs were significantly less accepting
378 of animal cruelty (total CAAC) and animal neglect than children without pet dogs (Tables 5,

6). No significant difference was found for intentional cruelty or unintentional animal cruelty (Tables 5, 6). There was no significant difference between children with or without cats, small mammals, fish, reptiles or amphibians, birds or other, for overall attitudes towards animal cruelty or any sub-scale (Tables 5, 6).

[Tables 4, 5 and 6 here]

Discussion

The results demonstrate that the variables that predict or are predicted by attitudes towards animal cruelty, depend on the type of animal cruelty, whether cruelty is intentional, unintentional or animal neglect. Acceptance of animal cruelty was predicted by negative attitudes towards animals and lower Child-BAM scores. This makes sense given that negative attitudes (Arluke, 2003; Thomas & Beirne, 2002) and a lack of understanding of an animal's perspective (Broom, 2010; Ellingsen et al., 2010) relate to violence towards animals. This highlights the importance of targeting attitudes through interventions, as well as reinforcing the importance of teaching children about animal sentience for promoting prosocial behaviour and preventing future violence.

Acceptance of animal cruelty predicted low pet attachment, low compassion, and less self-reported humane behaviour. These results reinforce the importance of targeting children's attitudes towards animal cruelty in interventions to decrease acceptance of animal cruelty and to promote the humane treatment of animals. Acceptance of intentional animal cruelty was predicted by low attachment, low compassion, less humane and caring behaviour, negative

attitudes, and lower Child-BAM. On the other hand, unintentional animal cruelty was predicted by positive attitudes (although not significantly) and lower Child-BAM scores. These findings are consistent with previous research on the link between animal cruelty and attitudes towards animals, belief in animal mind, pet attachment, compassion and behaviour (Hawkins & Williams, 2016; Hawkins, Williams & Scottish SPCA 2017b).

The results suggest that there may be at least two developmental pathways to animal cruelty in childhood. The first pathway relates to children who are intentionally cruel and/or neglectful (possibly due to disrupted development of compassion and empathy or other behavioural disturbances; Decety et al., 2016; Thompson & Gullone, 2003). The second pathway involves children who like animals and display positive attitudes towards them but may harm them unintentionally through inappropriate handling and play (supporting Ascione's (2005) classification system for cruelty types). Children may harm animals by accident, or unintentionally due to a lack of knowledge of animal welfare needs and lack of knowledge about animal sentience (Muldoon et al., 2009). Those who are intentionally cruel may need a more targeted intervention (e.g. Scottish SPCA Animal Guardians in the UK, launched in 2018), or the opportunity to form an attachment to an animal (e.g., through animal assisted therapy; Parish-Plass, 2008; Trotter, Chandler, Goodwin-Bond & Casey, 2008). Children who harm animals unintentioanlly may therefore benefit from more general educational interventions where they are taught to care for and treat animals appropriately and safely (Hawkins, Muldoon, Williams & Scottish SPCA, 2018).

There is not enough research on the demographics of people who are cruel to animals in general, but this is especially true for child populations. Demographic characteristics such as gender, age, race, education, area of residence and social class as well as situational influences (e.g. with peers or alone) should not be overlooked (Hensley & Tallichet, 2005). An individual's social position as well as culture and social organisation, can have an impact on

427 animal cruelty behaviour (Levinthal, 2010). Research examining socio-demographic factors in
428 relation to animal cruelty is limited. The present study offers some insight into the potential
429 impact of demographic factors on children's attitudes towards animal cruelty. Firstly, lower
430 family affluence was associated with higher acceptance of animal cruelty which is consistent
431 with previous research (Burchfield, 2016; Levinthal, 2010). Children experiencing lower
432 family affluence, which is often associated with area of residence (e.g. deprivation areas), may
433 therefore be more at risk for violence towards animals. Children residing in urban areas were
434 more accepting of animal cruelty, particularly intentional and unintentional animal cruelty, than
435 children from rural areas but we did not find this difference for animal neglect. Our findings
436 are consistent with previous research that animal cruelty is more often observed in urban
437 environments (Hensley & Tallichet, 2005). Hensley & Tallichet (ibid) suggest that those from
438 rural areas may have been taught to respect animals, developed greater regard for animals and
439 had more interaction with animals, and these early socialisation experiences might lead to
440 greater attachment to animals. It should be noted that animal cruelty can occur in both urban
441 and rural environments but there may be differences in the learning of cruel behaviour and the
442 species of the target animal. For example, Hensley & Tallichet (ibid) found that those in rural
443 environments learned to be cruel by observing family members exclusively, they also only
444 targeted cats whereas those from urban environments learnt by observing both friends and
445 family and targeted dogs, cats and wild animals. However, Hensley & Tallichet (ibid)
446 conducted their research with incarcerated male adults and so little is known about how
447 demographic variables directly impact children's violent behaviour towards animals. Thus,
448 there is a societal impact on children's attitudes towards cruelty, children from more deprived,
449 urban areas may be more tolerant of animal cruelty (where animal cruelty acts may be more
450 normalised). Further work is required to explore sociodemographic differences in childhood
451 animal cruelty.

We found that younger children were more accepting of animal cruelty, specifically intentional animal cruelty, which is consistent with previous research that animal cruelty declines with age (Gullone, 2014). Our sample was from general school population across Scotland, rather than with a specific targeted group displaying behavioural and psychological difficulties. The results therefore suggest that in the general population, children are more accepting of animal cruelty when they are younger. Children may experience attitudinal change as they become more able to regulate their emotions (Gullone, 2014) and mature cognitively enabling greater understanding animal welfare needs and appropriate animal care. There may also be increased responsibility for caring for animals such as family pets with age; caring for family pets has been associated with empathy, benevolence, humane attitudes, greater concern for animal welfare and learning of moral reciprocity and responsibility (Daly & Suggs, 2010; Paul & Serpell, 1992; Vidović, Štetić & Bratko, 1999). However, it should be noted as mentioned previously, that animal cruelty behaviour seems to peak in adolescence or young adulthood, particularly between ages 14 and 15 years (McVie, 2007). Children's interest in animals and attachment to pets also declines in adolescence (Williams, Muldoon & Lawrence, 2010; Muldoon, Williams & Currie, 2019). As we only recruited children up to the age of 12 years-old, we do not know whether attitudes towards animal cruelty change during adolescence and so future research could use the CAAC for a wider age-range to assess developmental trends.

Gender has been argued to be a strong predictor of with animal cruelty (Flynn, 2001) with females reported as less likely to engage in animal cruelty (Herzog, 2007). In the present study, boys were more accepting of animal neglect than girls, consistent with previous research (e.g. DeGue & DiLillo, 2008). However, we did not find a statistical difference between girls and boys in relation to acceptance of intentional animal cruelty, which was not expected given the current literature on gender differences in childhood intentional animal cruelty (e.g. Baldry,

2005). There may be gender roles in pet care within homes; young boys may not feel fully responsible for their pets (Muldoon, Williams & Lawrence, 2015) and attachment to pets appears to decline more for boys than girls in adolescence (Muldoon, Williams & Currie, 2019). Thus, gender patterns appear to interact other factors such as age and require further research.

Children who had a pet of their own were less accepting of animal cruelty, specifically less accepting of animal neglect. This makes sense given that pet ownership is related to positive attitudes towards animals (Paul & Serpell, 1993), having a pet that is seen as one's own is also related to positive attachment to pets (Marsa-Sambola et al., 2015) and that having a close attachment to one's pet is associated with more pro-social behaviour and compassion in children (Hawkins, Williams & Scottish SPCA, 2017b). Pets also provide social support and therefore may mitigate against early life stressors and traumatic experiences (Arambašić et al., 2000) which are often risk factors of animal cruelty behaviour (Gullone, 2014). It did not seem to matter how many pets a child had in the family home as we found no significant difference in attitudes between children with none, one, two or more than two pets. We did find however, that attitudes towards cruelty differed depending on species of a pet owned. Children who had pet dogs were less accepting of animal cruelty, particularly animal neglect, than children without dogs, but there was no difference in attitudes for owners of other types of pets. This may be a result of increased empathy in dog owners (Daly & Morton, 2006). However, it should be noted that only 1% of the total variance for attitudes was accounted for by having a pet of their own or having a pet dog. This indicates that having pets may play a small role in children's attitudes towards animal cruelty.

The evaluation and refinement of CAAC should be an on-going process. Future studies should assess the applicability and performance of CAAC across other populations, areas and countries. Although we collected data from a large sample covering a range of demographics

(rural/urban/deprived/wealthy), the majority of our sample were from mid-affluent families and from urban areas and so the findings cannot be generalised. Cross-national studies using the CAAC are therefore recommended to examine social and cultural differences in children's attitudes towards animal cruelty and cruelty behaviour (see Hawkins, Hawkins, Cáceres & Williams, 2017). The item "kill an animal" did not fit quite as well as the other items within the sub-scale "intentional animal cruelty" (0.43) potentially due to different interpretations (e.g. kill for enjoyment, through euthanasia, or for food), as some children noted on their questionnaire. A higher percentage of children with pets ticked the item "very acceptable" (2.4%) than children without pets (1.5%) possibly due to a different interpretation of the item. Children from farming areas may be more likely to agree that killing an animal is acceptable if they have witnessed or are aware of their family killing animals for food. This item could therefore be refined in future studies so there is a clearer distinction between inhumane killing (e.g. for fun), humane killing (e.g. euthanasia) and for food production. A further limitation is the modest effect sizes for the various variables including demographics and SAPS. As we used a large sample (over 1000 children), the effect sizes calculated are most likely accurate. However, Glass, McGaw & Smith (1981) point out that the practical importance of an effect depends entirely on its relative costs and benefits. Due to the important topic of animal cruelty, any effect size should not be overlooked given the implications. Finally, attention should be drawn to the importance of conducting research on animal cruelty in childhood, and the use of CAAC in combination with other child assessments should be encouraged. These assessments could include the Child Behavioural Check List (Achenbach & Rescorla, 2001), assessments for callous-unemotional traits (e.g. The Psychopathy Screening Device; Frick & Hare, 2001), Conduct Disorder (e.g. the National Institute of Mental Health Diagnostic Interview Schedule for Children, Version 2.3; Shaffer et al., 1992), children's behaviour towards animals (e.g. Children's Treatment of Animals Questionnaire; Thompson & Gullone, 2003) and animal

cruelty behaviour (e.g. Physical and Emotional Tormenting against Animals Scale; Baldry, 2004).

Conclusion

Exploring children's attitudes towards animal cruelty could provide important data to assess risk for future perpetration. Furthermore, self-reporting of attitudes may be less sensitive for children than reporting on cruelty behaviour. Children are more likely to be accepting of animal cruelty if they hold negative attitudes towards animals, display lower beliefs about animal minds and have low attachment to pets, signifying the importance of targeting such variables in animal cruelty prevention programmes. Acceptance of animal cruelty may indicate risk for inhumane behaviour and low compassion towards animals. Future studies should use CAAC with other child populations and assess its association with a broader range of outcomes, including human-directed aggression. Children's attitudes towards animal cruelty should be targeted by cruelty prevention programmes. Early prevention strategies that begin in primary school and continue into secondary education to challenge attitudes that animal cruelty is acceptable would be beneficial in reducing animal cruelty.

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814 Table 1. Descriptive statistics for the animal cruelty items.

815 Table 2. Associations between CAAC, IAC and factors related to child-animal relationships.

816 Table 3. Associations between UAC, AN, and factors related to child-animal relationships.

817 Table 4. Descriptive statistics for socio-demographics and acceptance of animal cruelty.

818 Table 5. Statistical results for demographic differences children's acceptance of animal cruelty
819 (CAAC).

820 Table 6. Descriptive statistics for pet ownership and acceptance of animal cruelty.

821 Figure 1. Associations between children's attitudes towards animal cruelty and measures
822 relating to child-animal relationships. Standardised (beta) regression coefficients are included
823 as demonstrators of strength of the direction. All $p<.005$.

824 Figure 2. Associations between children's beliefs about animal minds and measures relating to
825 child-animal relationships. Standardised (beta) regression coefficients are included as
826 demonstrators of strength of the direction. All $p<.005$.

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